



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Adam J. Morton	Project Number J1426
Project Title The Effects of Xylitol on the Growth of Streptococcus mutans	
Abstract Objectives/Goals The objective of this project is to determine if Xylitol will have an inhibiting effect on the growth of Streptococcus Mutans. Xylitol, a sugar alcohol found in plant cells, is used as a sugar substitute credited with an ability to actually reduce tooth decay. Methods/Materials I applied 1/2 gram Xylitol into five petri dishes with seven drops of Streptococcus Mutans rich broth. In five other dishes, one gram of Xylitol and broth were applied. In the last five, the bacteria was applied without the Xylitol. Petri dishes were placed in a home made incubator. Observations were made twice daily for eight days. Bacteria colonies were counted using Totallab 1100 colony counter. Results Resulting colony counts were: 28,888+-165 for the 1/2 gram group; 33,570+-195 for the 1 gram group and 35,011+-209 for the control (with bacteria but no Xylitol). The two groups containing Xylitol showed less bacteria than the control group. The number of colonies was lowest in the 1/2 gram group. Conclusions/Discussion The two groups with Xylitol exhibited fewer Strep. Mutans colonies than the control group, indicating that Xylitol does inhibit the growth of Steptococcus Mutans. The group with the larger (1 gram) amount of Xylitol had more colonies than the 1/2 gram Xylitol group. Further study to determine why the 1 gram group showed greater bacterial growth than the 1/2 gram group is recommended.	
Summary Statement Xylitol has a minor inhibiting effect on the growth of Streptococcus Mutans.	
Help Received Parents provided used parts to create incubator and helped purchase Xylitol and Strep. Mutans online.	